

Learn. Explore. Experience.

There are many different ways to learn more about Engineering and the different fields and ways that you can use engineering. Check out some of these sites to learn more through interactive games, tutorials, videos, and more! - **eGFI** – www.egfi-k12.org - “Dream Up the Future” – explore a variety of different fields and learn how they impact the world.

- **Engineer Girl** – www.engineergirl.org – learn about different careers including job details, skills needed, educational needs, salary information, and potential projects you could work on.
- **Engineering a World of Difference** – www.engineeringaworldofdifference.org showcases real-life engineers, what impact they are making and information about what they actually do.
- **Futures In Engineering** – www.futuresinengineering.org – learn about different career fields, how to get there and see videos interviews of Engineers.
- **Stem Works** – www.stem-works.com – explore a variety of different careers, go through online exhibits, and learn more about possible job opportunities

PLTW

Project Lead the Way (PLTW) is “the leading provider of rigorous and innovative Science, Technology, Engineering, and Mathematics (STEM) education”. Get more information at www.pltw.org.



Get Involved and Expand

Engineering is not just limited to class time, we also have four different organizations to get involved in at QO!

- **“Fungineering”** – this is a club of students who are looking to use engineering to solve fun problems.
- **iSTEM Engineering Club** – this club has two teams that are competing in the FIRST Robotics competitions, has students competing in the CyberPatriots competition from the Air Force Association, and works with the 3-D printer to design different objects. The club meet multiple times a week and are always looking for more students to get involved and parents, engineers, and programmers looking to mentor the teams.
- **National Technical Honor Society** – all students who complete three or more PLTW courses with at least a 3.25 are eligible to participate. Members are eligible for National Scholarships, provide tutoring for other PLTW students and network.
- **Women in Engineering** – this is a club where female PLTW students can network, listen to guest speakers, and do outreach and promotion of Engineering.

Parent/Community Partnership Team

All parents are also encouraged to get involved by becoming a part of the PLTW Partnership team. The team meets 4 times per school year to discuss the development of the courses, opportunities for students, schedule presentations by engineers, and more. This group has been fundamental in the growth and success of the QO PLTW program. We are also always looking for more guest speakers with different backgrounds for our classes.



Ten Reasons to be an Engineer:

1. Love your work AND live your life too!
2. Innovate and make our world a better place.
3. Learn how things work.
4. Solve problems and design things that matter.
5. Use your imagination and creativity to help people.
6. Have a guaranteed job out of college.
7. Make a big salary.
8. Enjoy job flexibility and possibly travel for work.
9. Have fun while you learn cool and new things.
10. Be part of a great community.

Image taken from: <http://www.asce.org/eweek/>

PLTW, QO, and You!

Get more information about:

Earning college credit – up to 15 credits while taking the following PLTW courses at QO:

- **IED – Introduction to Engineering Design** – the first course in the sequence that explores the design process and introduces students to engineering while earning their graduation credit in technology.
- **POE – Principles of Engineering** – the second course in the sequence that explores a variety of engineering topics while developing and applying problem solving skills.
- **DE – Digital Electronics** – the third course in the series that focuses on circuit design, the basis for all modern electronic devices.
- **AE - Aerospace Engineering** – an option for the fourth course in the series that focuses on learning the fundamentals of atmospheric and space flights learning basic orbital mechanics and robot systems.
- **ES - Environmental Sustainability** – an option for the fourth course in the series that uses hands-on projects to solve real-world challenges related to clean and abundant drinking water, food supply issues and renewable energy.
- **EDD – Engineering Design and Development** – the final course, a capstone course where students apply their engineering knowledge to design and develop a solution to an open-ended technical problem.

How to fit it all in – there are plans that include AP classes, PLTW, Art, Computer, and other courses on the QO Course Bulletin Page.

Contact a teacher, the coordinator, or get info online: www.qohs.org > Project Lead the Way

Summer Programs

There are a variety of different summer camp or college course programs that students can get involved in to further explore Engineering. Two of the top programs are local:

- George Mason University
- Howard University
- Johns Hopkins University:
<http://engineering-innovation.jhu.edu/>
- United States Naval Academy
- University of Maryland, CP:
 - CyberSTEM & Cyber Defense Training Camp
<http://cyber.umd.edu/education/precollege>
 - Discovering Engineering & ESTEEM
<http://www.eng.umd.edu/k12/summer-programs>

Additional top programs are offered at:

- Carnegie Mellon
- Massachusetts Institute of Technology
- Stanford University (Internship Program)
- University of Michigan
- University of Pennsylvania

Internships

There are many local internship opportunities for students to explore engineering and put their knowledge to use and practice. Internships provide great real-world experience for the students can be done over the summer and throughout the senior year of their school year.

Local opportunities include:

- National Institutes of Standards and Technology (NIST)
- National Institutes of Health (NIH)
- NASA Goddard Flight Space Center

Scholarships

In Specific Degree Fields:

- Civil Engineering – www.asce.org
- Computer Engineering and Electrical Engineering – scholarships and grants available - www.ieee.org

Opportunities for Girls:

- Engineer Girl – “How to Get There”
www.engineergirl.org
- Society of Women Engineers – over 72 listed scholarships – www.swe.org

General Sites listing additional Engineering Scholarships:

- www.cappex.com
- www.scholarships.com
- www.schoolsoup.com

Careers and Starting Salaries

“Engineering graduates will earn the highest average starting salary among all graduates in 2015, at \$63,000” - National Association of Colleges and Employers. With just an undergraduate degree you can start earning anywhere from \$51,000 to \$68,000 – information is taken from www.Salary.com and www.engineergirl.org.

- Aerospace Engineer - \$69,300
- BioEngineering/BioMedical - \$51,500
- Chemical Engineer - \$68,000
- Civil Engineer – \$62,000
- Computer Engineer – \$61,000
- Electrical Engineer – \$65,000
- Environmental Engineer – \$58,000
- Industrial Engineer – \$61,000
- Materials Engineer – \$62,000
- Mechanical Engineer – \$63,000
- Nuclear Engineer – \$68,000
- Software Engineer – \$63,000